FOOTE'S

OPHTHALMIC MEMORANDA

Dr H. I. Bowditch

with respects of the pub-

lishers —

OPHTHALMIC MEMORANDA

RESPECTING THOSE

DISEASES OF THE EYE

WHICH ARE MORE FREQUENTLY MET WITH IN PRACTICE.

BY JOHN FOOTE,

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ADVERTISEMENT.

In presenting this little volume to the profession, I have had solely in view to condense facts, avoiding all theory, so that a large amount of information might be comprised in a comparatively small space. The contents have been carefully compared with those of the best systematic treatises on the Diseases of the Eye, and the treatment recommended is either founded on their authority, or drawn from the results of my own experience; at the same time I should say that I consider myself responsible for all that is advanced herein, as it is utterly impossible in so small a work to indicate the names of authorities in each page.

J F.

36 *Tavistock Street, Covent Garden,*
February, 1838.

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OPHTHALMIC MEMORANDA.

DISEASES OF THE EYELIDS.

OPHTHALMIA TARSI.—LIPPITUDO.

The edges of the eyelids are subject to a peculiar inflammation of an obstinate character, which, when neglected, frequently becomes incurable. The disease is sometimes called psorophthalmia, from the idea that it arises from the inoculation of the itch. Its seat appears to be the Meibomian follicles, where it commences, and spreads thence to the adjoining textures, the conjunctiva, the glands at the roots of the cilia, and the surrounding skin. When it has caused the destruction of the Meibomian follicles, and the loss of the eyelashes, the lid assumes a raw appearance, which is commonly termed *blear eye*. It occasionally also destroys the tarsus. The Meibomian

follicles pour out an increased secretion of a glutinous character, which, collecting during the night and becoming inspissated, causes the eyelids to adhere; if, in the morning, these are forcibly separated, great pain is caused, the eyelashes are torn out, and small abscesses and ulcers form at the roots, which are prevented healing by the continued irritation. The conjunctiva of the lids, and sometimes of the ball of the eye, becomes inflamed and thickened, the eyelids itch, the tears run over the cheek, and, from their acrid character, cause excoriation, ulceration, and great swelling. The tarsus, if not destroyed, may lose its form, and become distorted. Among the consequences of this disease, in addition to the blear eye, may be enumerated occlusion of the Meibomian apertures, eversion or inversion of the eyelids, inversion of the eyelashes, &c. The disease occurs most frequently in children, more especially in those of a strumous habit, and is generally the sequela of previous inflammation. It is in a great measure constitutional, and general measures, in

addition to topical applications, are always requisite. On no account ought the eyelids to be forced open in the morning, when adherent; but the secretions should be carefully removed with a sponge and warm water, to prevent injury to the cilia. The disease is occasionally induced by the abuse of vinous stimulants. Alteratives, tonics, chalybeates, and iodine, with occasional aperients, should be given internally, and emollient, refrigerant, or astringent applications may be used topically. Fomentations may be employed to relieve pain, and scarifications of the conjunctiva of the eyelids, with the application of leeches, may be had recourse to: evaporating lotions are occasionally of utility. When the disease is more chronic, astringent collyria, and stimulating unguents, may be employed with great advantage. The application of an ointment to the eyelids at night is of essential benefit, in correcting the diseased state of the glands, and preventing the morbid adhesion of the eyelids. When the lids are much thickened and the tarsus studded with ulcers, Quadri of Na-

ples recommends extracting the cilia, and touching the diseased surface slightly with the nitras argenti. Cleanliness, the warm bath, and regulated diet, with abstinence from salted or highly-seasoned food, are of considerable importance. ℞ Hydrarg. cum cretâ gr. iv.; pulv. rhei gr. vj.; Misce, fiat pulv. horæ somni sumend. ℞ Quinæ disulph. gr. iss. pulv. sacch. gr. vj. Misce, fiat pulvis, bis in die sumend. ℞ Ferri sesquioxid. gr. v.; pulv. rhei gr. vij. Misce, fiat pul. bis vel ter in die sumend. ℞ Iodinæ gr. ij.; Potassæ hydriodatis gr. vj.; Aquæ destillatæ ʒiij. Solve, capiat sextam partem ter de die. ℞ Sp. ætheris nitrici ʒij.; Aceti destillati ʒss.; Aq. destill. ʒvj. Misce, fiat lotio evaporans. ℞ Hydrarg. bichloridi gr. ij.; Aquæ destill. ʒviij. Misce, fiat collyrium, frigid. vel tepid. utend. ℞ Zinc. sulph. gr. ij.; Aquæ destill. ʒij. Misce, fiat collyrium. ℞ Sp. vini Gallici ʒiij.; Aquæ destill. ʒij. Misce, fiat collyrium. ℞ Hydrarg. binoxidi gr. xij–xx.; Butyri vel adipis ʒj. Misce bene, et fiat ung. ℞ Ung. Hydrarg. nitratis ʒj.; Ung. cetacei ʒiij. Misce, fiat unguent. ℞ Tutiæ prep. ʒij.; Bol. Ar-

men. ʒij.; Hydrarg. ammonio-chloridi ʒj.; Adipis ℥ss. Misce, et fiat unguent. (*Janin.*) ℞ Zinc. sulph. gr. xvj.; Hydrarg. binoxidi gr. viij.; Adipis præp. ʒij. Misce, et fiat unguent. (*Dupuytren.*) ℞ Butyri recentis insuls. ℥ss.; Cupri sulph. gr. x.; Camphoræ gr. iv.; Tutiæ præp. gr. vj. Misce exactissime, et fiat unguent.

TRICHIASIS.—DYSTRICHIASIS.

The former of these diseases, inversion of the eyelashes, a not unfrequent consequence of ophthalmia tarsi, is a source of great annoyance, the irregular curve of the cilia causing irritation of the conjunctiva, lacrymation, and even inflammation, with muddiness of the cornea. Dystrichiasis, or misplacing of the eyelashes, the irregular ones being inverted, will produce a similar train of symptoms. When the complaint has not existed for a length of time, extraction of the inverted or misplaced cilia will be sufficient to remove the irritation, but the operation requires

to be repeated, and in some instances it must be done every month. A radical cure may sometimes be effected by touching the eyelid externally, at the part where the disease is situated, just above the tarsus, with the actual cautery, or a mineral acid, or by puncturing the part with a lancet, and inserting a small piece of pure potassa fusa, which will cause an ulcer, the cicatrizing of which will induce contraction, and give a new direction to the inverted cilia. Excision of the tarsus, of the edge of the eyelid, and of the skin containing the cilia, has, in extreme cases, been practised, and with advantage. The removal of the tarsus, including, of course, the Meibomian apertures, produces permanent and incurable lippitudo.

ECTROPION.

Eversion of the eyelid occasionally occurs in cases of the purulent and gonorrheal ophthalmiæ from the congested and swollen state of the conjunctiva of the

palpebræ. When allowed to continue without any attempt at reduction, the integuments and the tarsus act like a ligature on the protruded membrane. If ordinary pressure be insufficient to restore the eyelid to its proper position, scarifications should be employed so as to lessen the size of the tumor, and then, for the reduction of the upper lid, traction should be made on the tarsus downwards and backwards. If the eversion cannot be controlled by these measures, a slip of the diseased conjunctiva should be removed by means of a hook or hooked forceps, and a pair of scissors. The profuse bleeding which follows will be of assistance in reducing the volume of the eversion. Ectropion of a permanent character may arise from neglected lippitudo, excoriation and ulceration of the cheek, cicatrices from burns, wounds and cicatrices of the eyelids, &c. In this case the eyelid is more or less everted, the palpebral conjunctiva of a pale red color, thickened, and, when the disease is chronic, possessing much less sensibility than is natural. The eye, unguarded by the lid, is exposed to fre-

quent attacks of inflammation, and there is almost constant stillicidium lacrymarum. The treatment proper for the removal of the accompanying inflammation, should be adopted; the disease of the eyelid is sometimes removed by the application of caustics, either by a pencil of the nitras argenti, by the cupri sulphas, or by the sulphuric or nitric acid. Care must be taken that the caruncula, puncta, and eyeball are not touched by the escharotic, and a stream of warm water from a syringe should be thrown on the part after each application. Gradual contraction of the conjunctiva, rather than sloughing, is the result. If this proceeding be ineffectual, a fold of the conjunctiva must be removed by an elliptical incision. It sometimes happens, more especially in cases arising from cicatrices from burns, that a third operation must be had recourse to. In such cases, the disease is more inveterate, and the eyelid more firmly bound down by the unyielding cicatrix. The operation, which is best fitted for the correction of this form of ectropium, consists in a modi-

fication of the Celsian proceeding. The cicatrix must be fully and completely divided, in order to free the eyelid from its unnatural position ; after which a fold of the conjunctiva, as in the previous operation, must be removed. The eyelid is then to be drawn up and applied against the eye, and kept in that situation by strips of adhesive plaster, the wound that has been made healing by granulation. In some cases, in which, from the long continuance of the disease, the tarsus has become elongated, and of an irregular shape, it will be necessary to remove a wedge-shaped portion of the tarsus and eyelid, and to bring the divided parts together by a stitch or two. The eyelid, when this has been done, will again fit close to the eye. Dr. Mackenzie recommends the piece cut out at the temporal extremity of the eyelid, as it causes a less apparent scar, and less interruption to the motions of the eyelid. Professor Jungken is of opinion that a sort of Taliacotian operation might be performed by dissecting out the cicatrix, when it depends on a previous burn, and replacing

it by a piece of integument, from the temple for the upper eyelid, and from the cheek for the lower one. It did not succeed in his hands, but both Fricke of Hamburg, and Delpech of Montpelier, have successfully performed a similar operation.

ENTROPIUM.

Inversion of the eyelids, more especially of the lower one, occasionally takes place in elderly people, from an attack of ophthalmia, mostly of the catarrho-rheumatic, or arthritic character, during which the eyelids have been kept spasmodically closed. The palpebral integument in old persons has generally lost its natural state of tension, and becomes loose and falls into folds, by which the formation of this disease is very much favored. The tarsus, which in cases of some duration is completely inverted, so that the cilia cannot be seen, is not altered in form, nor diseased in structure. By the proper application of traction, the inversion can be reduced, but it soon returns to the state it

was in before. As a consequence of the irritation produced by the unnatural position of the tarsus and cilia, inflammation of the conjunctiva, covering the ball of the eye, and of the cornea, ensues, and if not arrested by proper measures, total opacity of the latter membrane may follow. A chronic form of this disease is sometimes induced by neglected *ophthalmia tarsi*, in which, in addition to the inversion of the eyelid, the tarsus is shortened, indurated, and deformed, and has inserted in it only a few dwarfish eyelashes, which are affected with trichiasis. The conjunctiva is inflamed, thickened, and in course of time becomes cuticular, the vessels of the cornea are enlarged, the membrane itself is nebulous, and soon becomes opaque ; after a certain time, it loses its sensibility. Entropium may also arise from wounds inflicted on the conjunctiva, and from the cicatrices resulting from the application of caustic substances. In all cases of entropium, it is necessary, in addition to the topical measures adopted for the removal of this painful disease, to employ such as will relieve or remove the

inflammatory state of the parts. Cleanliness and attention to diet are of great importance. In the form of inversion, which is first described, all that is necessary, in general, is to remove a fold of the integuments of the eyelid, either by the repeated application of caustic, the nitras argenti, or the mineral acids, or by seizing an elliptical fold of the skin with the forceps, removing it with a pair of scissors, and then bringing the edges of the wound together with one or two stitches, as may be necessary. When the incision has healed, if sufficient skin has been taken away, the inversion will be cured; but the operation sometimes requires to be repeated. In chronic and inveterate cases, where the cartilage and adjacent parts are thickened and distorted, the operation just described will not be sufficient; it will be necessary then to divide the cartilage throughout its whole thickness near each canthus, so that the eyelid may be freed from its undue position, and the operator may readily evert it. An elliptical fold of the palpebral integument should be excised, and the stitches applied, as for the

other form of entropium. Threads being next passed through the tarsus, it is everted on the temple or on the cheek, according to the eyelid which is diseased, and secured there by strips of adhesive plaster, over which pledgets of lint, smeared with white ointment, and a bandage, are applied. The incisions made in the tarsus heal by granulation, and the more slowly that process is effected, the more likely is the operation to prove of service. The threads should be removed on the third day, or else they will cause ulceration, and work their way through the tarsus, and thus increase the mischief they were designed to obviate. It will be advisable, at the same time, to attend to the general health. The operation sometimes requires to be repeated.

ANCHYLOBLEPHARON.—SYMBLEPHARON.

The first of these diseased states, union of the edges of the eyelids to each other, either directly, or by the medium of a

pseudo-membrane, may occur alone, or in conjunction with the second, or union of the eyelids to the ball of the eye. The latter disease is not necessarily complicated with anchyloblepharon. The union, thus named, may be either partial or complete ; but neither can take place unless preceded by ulceration, as the conjunctiva is a mucous membrane, and incapable of undergoing the adhesive process without a previous breach of surface. The causes of this unnatural union will be found to be, injuries arising from burns, the action of escharotics, or from ophthalmia, inducing excoriation or ulceration of the edges of the eyelids, or of the conjunctiva. If, in cases of anchyloblepharon, a blunt probe passed in at the inner canthus meets with little or no obstruction, and can traverse completely over the organ, the patient can move his eye freely about (the eyelids being raised by an assistant), and can distinguish the various gradations of light, we may conclude that the case is not complicated with union of the eyelids to the ball of the eye, and that the cornea is clear. In such a case, an ope-

ration for dividing the attachment of the eyelids, would be decidedly advisable. If there is reason to suppose from the symptoms, that symblepharon exists, or that the eye is so much injured, that vision is lost, there then cannot be any advantage derived from the performance of the operation, as it would be only bringing to light an useless organ. If the eyelids are united directly, and not by the medium of a pseudo-membrane, and are without any opening by which a director can be passed in, the upper and lower lids must be lifted up, so as to form a perpendicular fold raised from the eyeball; the surgeon will make a small incision in this in the course of the natural opening, so that a director may be passed in, and the adherent parts divided on it. If a pseudo-membrane exists, when the eyelids have been separated the remains of the membrane should be carefully removed with the scissors. The operation itself does but little for the cure of the patient; everything depends on preventing fresh adhesions forming between the eyelids in the course of the after-treat-

ment. In order to do this the more effectually, the operation should be always performed early in the morning, and the patient should refrain from sleep as long as possible, and when at last overpowered by it, a friend should every now and then open the eye, and keep the eyelids apart for a while. The organ itself should be kept, if possible, in a state of perpetual motion, and the edges of the eyelids, besides being smeared with a mild ointment from time to time, should be touched every day with the nitras argenti, to prevent granulations. But little advantage, if any, will be derived from dissecting out the bands of union in a case of symblepharon, as the eyelid will be sure to contract fresh adhesions.

LAGOPHTHALMOS.

Shortening of the eyelids, so that they cannot cover the eye, but leave it exposed to the light, dust, &c., may be caused by burns or abscesses, occurring between the

conjunctiva and the orbit, or from caries of the adjacent bones. It may also depend on palsy of the orbicularis palpebrarum muscle, in which case the levator palpebræ superioris, not being antagonized, keeps the upper eyelid constantly retracted. The palsied muscle may be treated in the same manner as the paralytic levator in cases of ptosis, and Dr. Mackenzie suggests that an operation similar to that for ectropium caused by a burn may be useful in the other instances.

PTOSIS.

Ptosis, or drooping of the upper eyelid, may depend on a variety of causes. Hypertrophy of the eyelid and relaxation of the integuments, a complaint not altogether uncommon, and occasionally inducing entropium, is one of these, and is generally treated in the same manner as a slight degree of inversion, by removing an elliptical fold of the integument, and bringing the edges of the wound together

by one or two stitches. The disease is sometimes congenital, in which case the eyelid either presents a natural appearance, or is rather wasted. The operation just alluded to has been performed by Dr. Mackenzie in two cases of congenital ptosis, but without advantage ; and I may state that a similar result attended an operation of the same kind which I performed. Traumatic ptosis may be caused by a laceration or transverse division of the levator muscle, or of the nerve supplying it ; in either case, the muscle is rendered incapable of acting, and the mere removal of a fold of the integument will be of no use. Mr. Hunt recommends that a piece of the palpebral skin be dissected out, the upper incision commencing a little below the eyebrow, and extending in a semi-lunar form to either commissure ; the lower incision must be made at a point more or less near the tarsus, according to the degree of relaxation of the eyelid (leaving, however, sufficient integument for the stitches to be passed through), and extending to either angle so as to join the terminations of the upper incision.

The portion of skin thus isolated having been removed, the edges of the incised parts are to be brought into close apposition, and retained in that situation by stitches. Three are generally required, but two occasionally suffice. The object is to attach the eyelid to the brow, and substitute the action of the occipito-frontalis for that of the levator palpebræ superioris. This operation may be also had recourse to in cases of congenital ptosis. Atonic drooping from weakness of the levator muscle may be combated by topical stimulants, general tonics, mechanical support, and electricity. Ptosis from palsy of the muscle occasionally occurs, either idiopathically, or as symptomatic of a less partial, and also of general paralysis. In the latter case, the treatment of the drooping will depend on the plan pursued for the relief of the general disease. In the former, local stimulants, blisters dressed with strychnia applied near the part, tonics, when required by the state of the system, sudorifics, electricity, and galvanism, are considered useful.

HORDEOLUM.—STYE.

Hordeolum, or stye, is a small tumor on the edge of the eyelid, very painful, and which advances very slowly to suppuration. It sometimes leaves behind it, a small, hard, indolent tumor, called grando. Hordeolum generally arises in strumous subjects; it is frequently induced by irregular living, late hours, a constipated state of the bowels, &c. An emetic followed by a purgative, forms the best general treatment; cold lotions may be applied to the stye, but if it be inclined to suppurate, the process should be hastened by the employment of the usual means, as bread-and-water poultices enclosed in a muslin bag, &c. If the grando cannot be induced to disperse, it should be laid open, its contents pressed out, and the interior stimulated by the application of a point of the nitras argenti.

SYPHILITIC ULCERS OF THE EYELIDS.

Cases are occasionally seen in which chancres, exactly resembling those which show themselves on the prepuce, &c., appear on the eyelids, either on the integument, or sometimes affecting the conjunctiva. The conjunctiva covering the ball has been similarly diseased. The ulcer can, in general, be traced to actual contact of the venereal virus with the part affected. Mercurials must be used for their removal, in the same way as for the cure of chancres in other parts of the body. It will be also necessary to use local applications, such as the black wash, the aqua Bateana, a solution of the nitrate of silver, the yellow wash, &c. Cases are on record in which the eyelids have been completely destroyed, before the system could be got under the influence of mercury. ℞ Hydrarg. chloridi gr. xv.; Liquoris calcis ℥j. Misce bene, fiat Lotio nigra. ℞ Cupri sulph. ʒss.; Camphoræ gr. viij.; Bol. Armen. ʒss.; Aquæ fervent. ℥viij. Solve et cola; fiat

AQUA BATEANA. ℞ Argent. nitratis gr. iv.–vj. ; Aquæ destill. ℥j. Solve. ℞ Hydrargyri bichloridi gr. ij. ; Liquoris calcis ℥j. Misce bene, fiat LOTIO FLAVA.

DISEASES OF THE

LACRYMAL SAC.

INFLAMMATION OF THE LACRYMAL SAC AND ITS PASSAGES.

INFLAMMATION affecting the lacrymal sac, and the ducts leading to or from it, may be either acute or chronic; in the first instance, it generally arises from cold or direct injuries; in the other, it is more frequently dependent on a strumous habit of body. The acute form is marked by a hard circumscribed swelling in the situation of the sac, attended with stillicidium lacrymarum, and deep-seated pain increased on pressure, and which, at last, is insupportable. As the disease proceeds, the conjunctiva and palpebral integument become inflamed, the tumor assumes a deep-red color, the pain is very severe,

and the constitutional disturbance proportionally great. A collection of a muco-purulent character forms in the sac, which is rarely got rid of, except by ulceration or sloughing of the superjacent parts: sometimes, but very rarely, it passes off by the puncta. The opening, which is formed by ulceration, has a tendency to contract, and remain patent, forming a true fistula lacrymalis, an occurrence, however, which is more frequently the case in chronic dacryocystitis. The inflammation must be combated by antiphlogistic measures; if the general symptoms require it, venesection may be practised, and leeches freely applied either on the tumor, or to the lining membrane of the nose; purgatives, salines, and diaphoretics are also requisite. Evaporating lotions may also be employed, but when it becomes evident that suppuration must ensue, it should be encouraged, the abscess opened as soon as it points, and the lacrymal sac washed out with warm water thrown in by a syringe daily. When the secretions have again become natural, the external opening may be closed. The

prognosis both in this and in the chronic form should be guarded, as it is impossible to ascertain the penetrability of the ducts during the existence of inflammation.

The chronic form of dacryocystitis is more common than the preceding; its approach is more insidious, and, in the early stage, unattended with pain. It commences with stillicidium lacrymarum, fulness and inflammation at the inner canthus, which, after a time, is followed by pain in the sac, secretion of mucus distending the cavity, and which, on pressure, gushes out at the puncta, and dryness of the nostril. Repeated attacks of inflammation will at length induce the suppurative stage, and an abscess will be the result. The process of ulceration, if surgical assistance be not had recourse to, will make an exit for the matter, and the opening may in time heal, but it occasionally remains fistulous, is sometimes followed by sinuses extending in various directions, some deeply, and occasionally, when the disease has been long neglected, or the patient is of a strumous habit, ca-

ries of the os unguis or inferior turbinated bone may ensue. A radical cure of this complaint can rarely be effected; and if a fistulous opening have formed, it will generally be found that the nasal duct is obliterated, and that the membrane lining the sac is in a fungous condition. Antiphlogistic measures are requisite in the treatment of this disease, but not to the same extent as in cases of acute dacryocystitis; leeches are useful even when the disease is just showing itself in the form of stillicidium, and are still more necessary when the symptoms of inflammation of the sac are more marked. Cold lotions applied to the part, and astringent solutions dropped into the eye, or injected into the sac with Anel's syringe, are of service in removing this disease. Blisters behind the ears, and to the nape of the neck, are also useful; electricity has been recommended. Before suppuration has taken place, passing Anel's probes through the puncta and ducts into the sac, will be of considerable advantage. When it is intended to pass the probe through the superior canal, it is introduced into the

punctum perpendicularly from below upwards, until it reaches the angle of the canal; it is then turned in a circle, the lid being drawn upwards and outwards, until the point of the probe is turned obliquely downwards and inwards. If the lower canal be the one to be examined, the probe is passed in through the punctum perpendicularly downwards, and the handle then lowered to a horizontal direction. If the canals are not obstructed, by carrying on the probe in the direction described, the sac will be reached, when it is to be turned downwards and a little backwards into the nasal duct, taking care not to hitch with the folds of the lining membrane, and carried on until it strikes against the floor of the nostril. Although this process alone will not clear the nasal duct, yet by employing it every day, with the use of injections by Anel's syringe, the passage may be re-opened for the tears and mucus. When the abscess has formed, and even if a fistula has resulted from subsequent ulceration, the sac should be laid open, cleansed by injecting it with warm water, and a style passed down the

nasal duct into the nose. For the first four or five days, the style must not be withdrawn, but only raised in order that the wound may be cleansed; afterwards it should be taken out every day, the sac and duct syringed with a weak astringent injection, and the style then replaced. While this instrument is worn, the tears and mucus pass down by its side into the nose, and the inflammatory symptoms disappear; but if it be removed, they return, and it is necessary to replace it. It should be made of gold, or of silver gilt, in order to avoid its corrosion. A cure is sometimes effected by its long-continued use, and then the edges of the fistulous opening by which it is introduced, must be freshened, or they will not heal. In addition to these local measures, constitutional remedies are also required, as the disease is generally dependent on, or at least kept up by, a scrofulous diathesis. Attention to diet, and regulating the patient's habits of life, are indispensably requisite; iodine, quina, and chalybeates, will prove of great service.

FISTULA OF THE LACRYMAL SAC.

It sometimes happens that the ulceration by which the contents of an abscess of the lacrymal sac are discharged, does not close entirely, but a small fistulous opening, with hardened edges, is left, by which the tears and mucus pass to the cheek, very little traversing the nasal duct. In some cases, fungus of the mucous membrane, sinuses extending in various directions, or caries of the unguis or maxillary bone, form complications. A free incision must be made in the sac including the opening, and then the attendant hardness may be removed by poultices. Should the nasal duct be more or less obstructed, a style must be worn. The sinuses may be laid open, but when caries is also present, general treatment becomes of great importance ; if the disease be syphilitic, mercury should be exhibited ; iodine and tonics, if strumous. The local measures to be used are, passing a style, and the injection of a weak solution of the nitrate of silver.

OBSTRUCTION OF THE NASAL DUCT.

Stricture of the nasal duct may occur either at the commencement, in the middle, or at its termination; the last is the most common. As in the cases previously narrated, an incision must be made in the sac, and a silver probe passed down the duct until it strikes against the floor of the nostril. If it pass readily, a nail-headed style of the same thickness should be worn, or the canal may be dilated by catgut kept in the passage, the coil being rolled up in the cheek, and drawn through daily, so that a fresh piece is applied every twenty-four hours. The dilatation, whether effected by styles or catgut, should be gradually induced, or the disease may return. The dilator may be smeared with a stimulating ointment, such as the ung. hydrarg. nitrat. dil., and colored astringent injections may be occasionally thrown into the sac from a syringe, and its passing by the nose in a stream will be a proof that the stricture has been overcome. The external open-

ing should be kept patent for some time after the style has been discontinued, and the injections used daily, to ensure the permeability of the duct. If the probe cannot be passed in the first instance, attempts should be made for a week, and if still unavailing, the duct should be perforated, or else an opening made through the os unguis. In either case, the patient should wear a gold style, and for life.

DISEASES OF THE CONJUNCTIVA.

CONJUNCTIVITIS.

Inflammation of the conjunctiva is marked by an injected and reticulated state of the blood-vessels of that membrane, the patient complaining of the sensation of sand in the eye, epiphora, and aversion to light. If the inflammation be severe, there may be headache, and some symptoms of fever. The disease is very apt to assume the chronic form. When acute, it requires either the application of leeches and aperients, with the employment of collyria, or it may be treated, *ab initio*, by stimulant applications. These latter are perhaps preferable in most cases, as they remove the tendency to chronic inflammation. General measures may be adopted at the same time, if necessary. The ung. argent. nitratis, &c., will prove

sufficient to remove the chronic disease. ℞ Argent. nitrat. gr. x.;* Adipis ʒj.; plumbi diacetatis *m.* xv. Misce, fiat unguentum. ℞ Hydrarg. bichloridi gr. v.; Ung. cetacei ʒj.; liq. plumbi diacet. *m.* xv. Misce, fiat ung. ℞ Argent. nitrat. gr. iv.—vj., viij.—xij.; Aquæ destill. ℥j.; fiant guttæ pro instillatione. ℞ Cupri sulphat. gr. vj.; Aq. destill. ℥j. Solve, fiant guttæ. ℞ Liq. plumbi diacet. *m.* vj.; Aq. Rosæ ℥ij. Misce, fiat collyrium. ℞ Zinc. sulph. gr. iv.; Aq. Rosæ ℥ij. Misce, fiat collyrium. ℞ Zinc. sulph. gr. iv.; Aq. destill. ℥iv.; Vin. opii ʒj. Misce, fiat collyrium.

PUSTULAR OPHTHALMIA.

In children of a strumous habit, more rarely in adults, a small pustule occasionally forms on the conjunctiva of the ball, generally near the inner canthus, with a few enlarged vessels supplying it.

* The salt must be reduced to an impalpable powder, and mixed carefully with the lard, before the liquor plumbi diacetatis is added.

The vinum opii or ung. argent. nitrat., with alteratives internally, will be sufficient to remove it. Chalybeates may be given to prevent a relapse.

CATARRHAL OPHTHALMIA.

A disease similar in appearance to conjunctivitis, but more severe, and attended with greater constitutional disturbance. The lacrymation is so scalding, as not unfrequently to cause excoriation of the cheek ; pustules form on the conjunctiva, and the discharge in a few days becomes puriform. It is occasionally epidemic, and then it is sometimes attended with considerable chemosis, causing ulceration of the cornea, or infiltration and sloughing, by the pressure it exerts. The sensation of sand or of a foreign body in the eye is most distressing. The disease generally attacks persons of a strumous habit. The antiphlogistic plan is scarcely admissible here, and should never be pushed far : local stimulants and astringents are far more useful, such as the

ung. argent. nitrat., the ung. hydrarg. bichloridi, vinum opii, liquor plumbi diacetatis, guttæ argenti nitratis, &c., at the same time the general health should be attended to. The chronic form especially requires the stimulant treatment. It is necessary to state that the continued use of the nitrate of silver in solution is apt to discolor the eye. The lids should be examined every day, as they are liable to become granular. ℞ Hydrarg. binoxidi ʒj.; Ung. cetacei ℥j. Misce bene, fiat unguentum. ℞ Hydrarg. bichloridi gr. j.; Ammoniæ hydrochlor. gr. ij.; Aquæ destill. ℥viij.; Vin. opii ʒij. Misce, fiat collyrium (*Mackenzie*). ℞ Cupri sulph. gr. iij.; Ex. Belladonnæ gr. ij.; Aquæ destill. ℥iv. Misce, fiat collyrium.

STRUMOUS OPHTHALMIA.

A disease which generally affects scrofulous children at an early age. The symptoms are swollen eyelids, great effusion of scalding tears, excessive intolerance of light, vascularity of the conjunc-

tiva, the vessels occasionally continued on the cornea, phlyctenulæ and ulcers of both membranes, the latter becoming thickened, and sometimes opaque. Ophthalmia tarsi is not an unfrequent accompaniment to this disease; a contracted and discolored iris, cataract, or amaurosis have, though rarely, been caused by it. Strumous ophthalmia is always attended with other symptoms of a scrofulous diathesis, as swelling of the glands of the neck, tumid belly, enlarged joints, porriginous eruptions, &c. The treatment should be directed to the amelioration of the strumous habit, in addition to the local measures; alteratives and iodine may be employed internally; blisters behind the ears are advisable, and stimulant collyria and applications to the eyes are of great importance. Change of air, and other antistrumous measures, should be adopted. There is, perhaps, scarcely any disease of the eye which is so liable to relapse, as the phlyctenular ophthalmia. ℞ Antim. potassio-tart. gr. $\frac{1}{8}$; pulv. sacch. gr. v.; Misce, fiat pulvis ter de die sumend. ℞ Hydrarg. chloridi gr. iij.; pulv. jalapæ

gr. viij.; Misce, fiat pulvis purgans. ℞ Hydrarg. cum cretâ gr. v.; Pulv. Rhei gr. viij.; misce, fiat pulvis. ℞ Iodinæ ℈j.; Hydriodatis potassæ ℈ij; Aquæ destill. ℥vij.; fiat solutio; capiat æger guttas vj. bis indies ex aquâ; augeatur dosis gradatim ad guttas xxxvj. in die. ℞ Ferri iodureti gr. iij.; Aq. destill. ℥ij.; tinct. aurant. ℥j.; solve; capiat tertiam partem misturæ ter in die. ℞ Iodinæ gr. ij.—iv.; Hydriodatis potassæ gr. iv.—viij.; Aquæ destill. lb. j.; Solve; fiat collyrium. ℞ Ung. Hydrarg. Nitrat. Ung. Zinci partes æquales; misce, fiat unguent. nocte applicandum palpebr.

OPHTHALMIA PURULENTA NEONATORUM.

This disease commences about four or five days after birth, with a slight inflammatory blush affecting the conjunctiva of the eyelids, and a thin discharge. Aversion to light, external discoloration and tumefaction of the lids, with restlessness and fever, generally accompany this attack. The discharge soon becomes puriform, and is secreted in considerable

quantity; the disease continues in this state for several days ere the conjunctiva of the ball is affected: when it is inflamed, chemosis soon follows, exerting considerable pressure on the cornea, and inducing inflammation and ulceration, or sloughing thereof, followed by prolapsus iridis, staphyloma, or escape of the humors, and atrophy of the organ. A month, or even longer, may elapse, ere fatal disorganization takes place, but a much shorter period will ocasionally suffice. The ulceration, &c., of the cornea, occurs much more rapidly when the disease is caused by gonorrhea in the mother, than when originating from the leucorrheal discharge. As the primæ viæ are almost always disordered, it is requisite to commence the treatment by aperients, and alteratives should be occasionally administered throughout. A leech may be applied to either or both temples, should it be deemed necessary from the severity of the inflammation. The application of the unguentum argenti nitratis is of great importance; two applications have been sometimes sufficient to effect a cure; in every

instance it will prove effectual in removing the disease, and, if used in time, in preventing any disorganization or alteration of structure. The discharge must be cleared every hour, or oftener, from between the eyelids, by injecting the alum lotion with a caoutchouc or ivory syringe. The various solutions of the nitrate of silver, the essential oil of lemons, vinum opii, and the solution of the chloride of lime, have been recommended as local stimulants. Central opacity of the capsule of the lens sometimes is a consequence of this ophthalmia. The disease is dependent on either gonorrhea or leucorrhea in the mother, and it is supposed that some of the discharge comes in contact with the conjunctivæ of the child while in transitu. ℞ Aluminis ʒj.; Aquæ destill. ℥xvj. Solve.

PURULENT OR EGYPTIAN OPHTHALMIA.

A disease attended with very considerable purulent discharge, and tending rapidly to the disorganization of the eye, has re-

ceived the name of Egyptian, or contagious ophthalmia. In its symptoms, course, and treatment, it resembles the purulent ophthalmia of new-born children, its symptoms being much more severe, and its progress proportionably more rapid. The inflammation commences in the conjunctiva of the lids, whence it extends to that of the ball, and is speedily attended with a puro-mucous discharge to a large amount, great tumefaction and vascularity of the lids internally and externally, chemosis of the conjunctiva, which forms a cup-like cavity around, and presses on the cornea, receiving and retaining a quantity of the diseased secretions. The eyelids, in consequence of their extreme tumefaction, are very liable to become everted on the slightest pressure, or in the course of a professional examination to ascertain the state of the eye. The reducing this eversion is sometimes, and very frequently, a task of great difficulty; the proper mode of proceeding has been described under the head of ectropion. The cornea is soon affected, its surface becoming ulcerated and opaque, or its

lamellæ infiltrated with pus: the margin, constricted by the chemosis, ulcerates, occasionally through into the anterior chamber, and sometimes rupture of the membrane takes place. The pain experienced is generally described as insupportable; it most frequently is circumorbital, and much increased at night, but occasionally is felt only in the eyeball; in some cases it is intermittent. In the early stage of the disease, the system is not much affected, but as it makes progress, more especially when the discharge is very great (and it has been calculated to amount to several ounces in the day), and the cornea is ulcerating, fever is excited, the pulse becomes frequent and sharp, with furred tongue, constipated bowels, dry skin, and thirst. When the eye is undergoing disorganization, hectic may supervene. Exposure to the humid night air, and the other causes which induce an attack of catarrhal ophthalmia, of which complaint, indeed, the Egyptian or purulent ophthalmia is by many considered to be merely a very aggravated form, are the presumed causes for the su-

pervention of this disease, which, when it once shows itself in a district, is very liable to become epidemic. The treatment should be directed to lower inflammatory action by general antiphlogistic measures, and to alter the diseased actions which are going on in the eye by local stimulant treatment. When the inflammatory symptoms run high, venesection from a large opening *prout ferant vires*, may be practised, and leeches may be applied around the orbit, but not on the eyelids, lest external ulceration should be produced. Emeto-purgatives, salines, and diaphoretics, with occasional doses of calomel and jalap, when required to keep the bowels free, with rest and low diet, are of great service, as general measures. Calomel and opium given two or three times a day till the mouth is sore, will be found very useful in relieving the pain, &c.; an anodyne at bed-time is also advisable. The local means to be adopted are to cleanse the eye every half-hour, or oftener if it be necessary, from the discharge, which should not be suffered to accumulate on any account. For this purpose an astrin-

gent wash, tepid, should be injected with a caoutchouc syringe between the eyelids, so as to clear it away completely each time that it is used. Once a day the stimulant ointment, made with the nitrate of silver, may be applied with a camel-hair brush over the inner surface of the lids, or a few drops of the nitrate of silver solution may be used every six hours. Some surgeons evert the eyelids, and pencil the inner surface with the solid nitrate of silver, or sulphate of copper, throwing afterwards a stream of warm water over it to wash away any of the salt which may be undecomposed; a similar effect is produced by this proceeding to that resulting from the use of the stimulating ointment. In this disease, the lids are found adherent in the morning, and, as a preventive, the citrine ointment, or one made with the red precipitate, should be smeared on the edges of the lids at bed-time; it will have the further effect of assisting in subduing the inflammation. The vinum opii is an useful application, both when there is much discharge, and afterwards, as a stimulant

to the relaxed conjunctiva. The various sequelæ of this ophthalmia, ulceration and opacities of the cornea, onyx, prolapsus iridis, granular conjunctiva, &c., are described under their respective heads.

From a variety of experiments, which have been made by several surgeons, it appears that the discharge in Egyptian, gonorrheal, and the purulent ophthalmia of new-born children, is capable of propagating the disease; it is therefore essentially necessary to guard against the matter coming in contact with the eyes of others, either directly or indirectly; great care is needed in syringing the discharge from the eyes of the sufferer, lest any of it should by spirted to the lids or eyes of the operater; it is also important that a set of sponges, syringes, towels, &c., should be reserved for the use of the patient, and that no one else should employ them. ℞ Argent. nitrat. gr. x.; liq. plumbi diacet. *m.* xv.; adipis ʒj.: misce, fiat unguentum, ut antea dict., ex quo applicetur paululum omni vel omni alternâ mane. (*Guthrie.*) ℞ Argent. nitrat. ʒj. ϑj.; adipis ℥j.: misce, fiat unguen. (*Mac-*

kenzie.) ℞ Hydrarg. bichloridi gr. j.; Aq. destill. ℥viij.: misce, fiat lotio. ℞ Aluminis ʒj.; Aquæ Oj.: solve, fiat lotio. ℞ Ung. Hydrarg. nitrat. ʒj.; Ung. oxyd. Zinci ʒij.: misce, fiat ung. ex quo africetur paululum tarsis nocte. ℞ Hydrarg. binoxidi gr. xx.—xxx.; adipis ℥j.: misce, fiat unguentum, tarsis applic. nocte.

GONORRHEAL OPHTHALMIA.

The existence of this disease has been strongly denied by some surgeons, but the evidence which has been brought forward is too decided to be set aside by a mere denial. It is supposed to arise both from infection and contagion: the latter, to wit, the actual contact of the gonorrheal virus, has been proved to be capable of producing an attack; the former has not yet been demonstrated. Some cases seem to prove its occasional origin from metastasis, the urethral discharge ceasing when that from the eye commences, and in such a case it becomes a part of the plan of

treatment to bring back the gonorrhea, by the use of stimulating bougies, &c. The symptoms bear a close resemblance to those of purulent ophthalmia, but in a more intense degree, the chemosis, pain, and intolerance of light, being far more severe, and the discharge much greater in quantity. The eyelids are very much tumefied, are readily everted when the eye is examined, and the eversion is reduced with great difficulty. The complaint is sometimes accompanied by a rheumatic affection of the joints. This ophthalmia runs its course very speedily, disorganization having sometimes commenced in the course of seventy-two hours. The chemosis is so great as to form a complete cup round the cornea, on which it exerts such pressure as to induce sloughing, characterized by dulness of the cornea, gradually increasing until the membrane becomes opaque, and finally sloughs out, followed by escape of the humors, and collapse of the globe. When sloughing is not caused by the undue pressure, ulceration or interstitial deposition may ensue, and obstruct vision to a

greater or less extent. If the ulceration pass through all the layers of the cornea, the iris falls forwards, and may adhere, or be protruded, and staphyloma be the result. Meanwhile the patient suffers exceedingly: general symptoms of fever, with headache, restlessness, and full pulse, manifest themselves. Authors differ much as to the treatment to be adopted: Lawrence recommends venesection to the utmost; Travers is content with moderate depletion, purgation, and the exhibition of nauseating doses of tartarised antimony; Lugol has cured cases by the internal and external use of iodine, but the plan of treatment, which appears to be most successful, is as follows: moderate bleeding and purging, so as not to exhaust the patient's strength, and the application of stimulants, the discharge being washed out every half hour with an astringent lotion as in the preceding cases, it being essentially necessary that it be not allowed to accumulate. By these means the disease may, I believe, in every case, be subdued, without injury to the eye, if employed before organic change has commenced. The ung. ar-

gent. nitrat. is that which I have employed most frequently, but other stimuli may prove of advantage, although perhaps requiring a longer time to produce beneficial effects. Beer recommends the vinum opii; Melin, the guttæ argent. nitrat. gr. xx. ad ʒi.; Veitch, the liquor plumbi diacetatis. When the discharge has ceased, and the chemosis and inflammation are subdued, should the cornea be ulcered, the gutt. argent. nitrat. may be used twice a day, and, if necessary, the ulcer may be touched with a fine point of the nitrate of silver. Tonics will generally be required when the inflammation has ceased. The formulæ given at the end of the preceding article will be of service in the treatment of gonorrheal ophthalmia. ℞ Hydrarg. bichloridi gr. j.–ij.; Ol. olivæ ʒj.; misce. ℞ Hydrarg. bichlor. gr. j.; Opii colati gr. viij.; Aquæ rosæ ʒij. Solve, fiat collyrium. ℞ Aluminis ʒj.; Aq. destill. ʒviij. Solve, fiat lotio. ℞ Antim. potassio-tart. gr. ij.; Magnes. sulph. ʒj.; Aquæ fervent. ʒviij. Solve; Capiat cochl. magn. ij., omni horâ vel bihorâ ut superveniret nausea.

ECCHYMOSIS OF THE CONJUNCTIVA.

Extravasation of blood under the conjunctiva is occasionally induced by blows and wounds of the eye or of the neighboring parts, fits of coughing, epilepsy, purpura, scurvy, &c.: it sometimes occurs without any known cause. The application of a stimulant, such as the vinum opii, or the use of an astringent lotion, will be sufficient to cause its absorption.

GRANULAR CONJUNCTIVA.

One of the most unpleasant consequences of the ophthalmiæ, is a granular state of the conjunctiva. On everting the eyelid, this membrane presents a rough, velvety appearance, bedewed with a purulent discharge, the palpebra being more or less thickened; from the irritation induced by the motions of the lid in this state, the conjunctiva of the ball participates in the inflammation, and the cornea becomes

opaque, thickened, sometimes studded with small ulcers, and traversed with enlarged vessels, continuous with those of the conjunctiva. In consequence of the opacity of the cornea, it is very difficult, if not impossible, to determine with any accuracy the state of the iris, but it is evident that in some cases it is the subject of sub-acute or chronic inflammation. No remedies will be of avail in curing the disease of the eyeball, unless the granulated state of the eyelid be previously removed. Stimulant applications have been used in the majority of instances with great advantage; scarifications are of no use, but the employment of the sulphas cupri every other day, rubbed freely over the conjunctiva of the lids, and a stream of warm water thrown on afterwards with a syringe, will form a most useful application. When the parts become accustomed to this stimulus, it may be varied by substituting the ung. argent. nitrat., for a short time, after which the use of the sulphas cupri may be resumed. A permanent blister to the nape of the neck is useful. If the lids

are granular to any extent, months may pass ere a cure is effected, and the patient will, in general, be always liable to relapses. The disease is essentially of a chronic character; after it has continued some time, constitutional disturbance, with hectic and cachexia, are apt to come on.

PTERYGIUM.

Pterygium, a fleshy enlargement of the conjunctiva, of a triangular shape, its apex directed towards, and sometimes attached to, the cornea, the base towards the canthus, and most frequently arising from the inner canthus. It is generally, but not always, as pale as the conjunctiva itself, with a few red vessels traversing it, but it is occasionally very vascular. The application of topical stimulants may be of use, but the best proceeding to be adopted is, its partial excision; the surgeon raising it from the sclerotica with a pair of forceps, dividing it with a fine scalpel, and terminating the operation

with a pair of curved scissors. The part to be removed is that midway between the base of the diseased growth and the cornea ; if more were cut away, according to Scarpa, the cicatrix would confine the eye, and prevent abduction. Elongated folds of the conjunctiva, and tumors between it and the ball or eyelid, may be removed by simple excision. The disposition to return may be checked by the application of the sulphate of copper or nitrate of silver.

OPHTHALMIA FROM MEASLES, SCARLATINA, AND SMALL-POX.

Measles and scarlet fever are generally attended (the former always) with a moderate degree of inflammation of the conjunctiva, marked by increased vascularity, intolerance of light, epiphora, and some pain. It may extend to the cornea, and ulcers or onyx be the result, but such a complication is rare. Ophthalmia tarsi is sometimes present, and, in strumous

subjects, the phlyctenular inflammation may be induced by measles. The treatment should consist of the application of topical stimulants, the exhibition of alteratives and aperients, and afterwards the sulphate of quinine to support the system. Small-pox causes a more severe degree of inflammation, and the cornea is more liable to become disorganized than in the preceding diseases. Before the introduction of vaccination by Dr. Jenner, numbers were deprived of sight by this scourge. It shows itself by inflammation and tumefaction of the eyelids, with pustules on their margins, which frequently induce lippitudo and trichiasis. Pustules also form sometimes on the ball of the eye, and on the cornea, causing onyx and ulceration, followed by prolapsus of the iris : the cornea is sometimes destroyed by infiltration of matter, and subsequent ulceration. The disease may occur five or six weeks after the primary complaint has ceased. If the pain be great, leeches should be applied to the temples and behind the ears, and fomentations to the eye may be employed, at the same time that

the proper treatment for the removal of the small-pox is put in force. When the subsidence of the palpebral swelling allows an examination of the eye to be made, it should be done with great care, and then that mode of treatment employed which is indicated by the state of the parts. From the commencement of the attack, even before the state of the eye can be ascertained, it will be advisable, once or oftener in the day, to drop in between the palpebræ a small quantity of olive or almond oil, or other bland preparation. The bowels should be kept well open, but purgatives should not be too freely employed, lest the patient's strength should be exhausted, and it become impossible to prevent disorganization of the cornea: sulphate of quina will be of service, and the vinum opii will prove a good topical remedy, when the diminution of the swelling of the lids admits of its application.

DISEASES OF THE SCLEROTICA.

SCLEROTITIS.—OPHTHALMIA RHEUMATICA.

Inflammation of the sclerotic coat commences with a deep lancinating pain in the orbit and side of the head, which is much increased at night, accompanied with more or less redness of the sclerotica, epiphora, and aversion to light. The enlarged vessels of the sclerotica may be distinguished from those of the conjunctiva, by their being of a bright rose-red color, zonular, more deeply seated, and fixed, the vessels of the latter membrane moving with it. As the disease advances, the conjunctiva and cornea become implicated, and the pain much more severe. The cornea loses its transparency, and vesicles form, which burst, and small ulcers are the result. If the disease be unimpeded, the iris partakes in the in-

flammation, becomes sluggish, is changed in color, irregular, and contracted. The other internal structures may become affected, and glaucoma with hydrophthalmia ensue. The treatment should be decidedly antiphlogistic. As the symptoms just detailed are accompanied with fever, a full, strong, and frequent pulse, furred tongue, hot and dry skin, and malaise, with disorder of the primæ viæ, venesection should be followed by the administration of purgatives, and afterwards antimonials with colchicum will be advisable, so as to bring the system decidedly under their action. When the pain is very severe, hyoscyamus or the liquor opii sedativus may be given at night, and blisters applied behind the ears, or on the nape of the neck. If the internal structures partake in the inflammation, mercury should be combined with the colchicum, as in cases of rheumatic iritis, so as to produce moderate ptyalism. The iris, throughout the treatment of the case, should be kept under the influence of belladonna. The ulcers of the cornea may be treated, as the cure progresses, with astringent col-

lyria, or the vinum opii may be applied once or twice a day. Bark will be found useful in the latter stages.

CATARRHO-RHEUMATIC OPHTHALMIA.

This complaint, which occurs principally among old persons, affects both the conjunctiva and sclerotica simultaneously; it is one of the most dangerous diseases that the eye is subject to. The vascularity is both reticular and zonular, the pain complained of circumorbital, and the patient also suffers from the sensation of sand in the eye, considerable intolerance of light, and epiphora; the conjunctiva, which, in several instances, is chemosed, pours out a puriform secretion, but not in the same quantity as in the more purulent ophthalmiæ; the secretion from the Meibomian glands is also vitiated, and the eyelids are swollen and injected. The pain produced by the inflamed conjunctiva is experienced principally in the morning; that caused by the sclerotic dis-

ease is complained of most at night, when there is a decided exacerbation. The cornea is very liable to suffer, and if the disease be neglected, ulceration, onyx, hypopion, or infiltration of pus, is an almost certain consequence. The ulcer is generally superficial, seldom penetrating deeply, unless it be of long continuance. The pus, in a case of onyx, is seldom absorbed, but, most generally, discharged by ulceration, the iris at the same time becoming changed in color, sluggish, and contracted, with an effusion of lymph. The general symptoms are those of fever, the pain preventing sleep. Venesection and the application of leeches will relieve the circumorbital pain, and lower the inflammation; the surgeon will be guided in the amount to be abstracted, by the constitution of his patient, and the exigencies of the case. Calomel and opium should be given twice or thrice a day, so as to produce moderate ptyalism, and the nocturnal pain may be alleviated by either an anodyne draught at night, or by opiate frictions on the temple an hour before bed-time; purgatives and sudorifics are

of advantage, and tonics may be given when the disease is disappearing. The guttæ argenti nigratis and the unguent. hydrarg. nitrat. dilut. are used for the removal of the conjunctival inflammation, and for the correction of the diseased condition of the Meibomian glands.

DISEASES OF THE CORNEA.

STRUMOUS CORNEITIS.

STRUMOUS corneitis is essentially a chronic disease, dependant upon constitutional causes. The vascularity affects both the sclerotica and cornea, the vessels of the former being arranged in a zonular form, those of the latter traversing it in every direction, and sometimes forming a complete network over its surface. The cornea, in the commencement of the attack, is hazy, and vision indistinct; as the disease advances, it becomes opaque, studded with small ulcers, and spots of effused lymph. Subacute inflammation not unfrequently, in a protracted case, extends to the iris, causing effusion of lymph into its substance or on the pupillary margin, adhesion to the capsule of the lens, occasionally irregularity, and a

contracted state of the pupil. There is not in general much pain complained of, nor is there great febrile excitement: the general symptoms indicate the strumous habit of body. Epiphora and intolerance of light do not exist in general to a great extent, but in some cases they are well marked. The treatment may be antiphlogistic to a certain extent, but care must be taken not to push it too far: the local measures should be decidedly stimulant. Venesection is seldom required, but the application of leeches, both at the commencement, and during the progress of treatment, may be advisable: purgatives and alteratives will be of service, and iodine should be given internally. The chloride of mercury with opium has been strongly recommended; its use should not be carried beyond moderate ptyalism; its combination with the disulphate of quina will prove serviceable in cases of a weakly constitution. The local treatment should consist of the application of the ung. argent. nitr., the vinum opii, or a strong solution of the nitrate of silver, used every or every

other day, according to the effect produced. Unless these stimuli cause a certain degree of pain, they will not prove of utility. Counter-irritation, by means of blisters behind the ears, or to the nape of the neck, setons, issues in the arm, &c., will be advantageous. The early employment of topical stimulants should be had recourse to, as it rapidly checks the progress of the disease, at the same time its constitutional character must not be overlooked.

ULCERS OF THE CORNEA.

These are generally the result of ophthalmia, but are occasionally caused by wounds, or by the direct application of acids, or other corrosive substances. The ulcer is sometimes induced by the breaking of an interstitial abscess, in which case it may be either external or internal, the latter causing false hypopion, or it may involve all the layers of the cornea, and prolapsus iridis or staphyloma

ensue. In the cases previously alluded to, the ulceration may affect the conjunctival covering of the cornea only, the whole extent of which may be involved, or it may extend more deeply into its substance. In almost every instance, the diseased part is surrounded by effused lymph, and frequently has enlarged vessels communicating with it from the adjacent parts. The pain is not very severe, but more constant than in ordinary inflammation, and the intolerance of light is to the full as great. The sloughing ulcer is marked by a greater severity of symptoms, and by febrile excitement, with pain in the side of the head, and eye, &c. The treatment of ulcers on the cornea will depend very much on the nature and the constitution of the patient. The sloughing ulcer must be touched with a fine point of nitrate of silver, and a solution of the salt, gr. viij. ad ℥j., should be used twice or thrice a day. Should there be much inflammation, leeches or cupping may be had recourse to, and the bowels should be attended to. The effusion of lymph is considered a proof that the heal-

ing process is going on. Mild stimulant applications are of great service in the treatment of all ulcers, but when the sore remains transparent, and shows no signs of cicatrizing, more stimulant lotions or unguents may be had recourse to. The liquor plumbi diacetatis should never be used in cases of ulceration, as the salt is decomposed, and precipitated on the ulcer, where it forms a dense and indelible albugo. Ulcers occurring in strumous habits require the adoption of measures calculated to change or ameliorate the scrofulous diathesis. Iodine externally and internally, and bark or quina, with the mineral acids, in all cases of debility, are advisable. The treatment of the specks, &c., which may remain, when the ulcers are healed, will be found under the next head, nebula, &c.

NEBULA.—ALBUGO.—LEUCOMA.

Opacities of the cornea have been divided by Beer into three kinds, to wit,

nebula, *albugo*, and *leucoma*. The first, generally the result of effused lymph, is recognised by a diffused cloudiness, thickest in the centre, and gradually losing itself in the transparent part of the membrane. It is mostly superficial: it renders vision less distinct than usual, but does not destroy it. Albugo is a more circumscribed and denser opacity, of a pearly appearance: it is surroundedwith nebula. If it occupy the centre of the cornea, it may form a serious obstruction to vision. Leucoma or cicatrix is the result of a wound or ulcer, and the three forms may be traced to previous inflammation, or they may be owing to the application of strong acids, lime, &c. Of these, the nebulous variety is most amenable to treatment: the others are with difficulty alleviated, especially in old subjects. As it is impossible that these consequences of inflammation can be removed, while the disease producing them is yet in existence, our remedial measures must be first directed for the relief of the original malady, and it not unfrequently happens

that the specks, &c., disappear or diminish to a great extent, from the action of the remedies employed for the cure of the inflammatory attack. If, however, they still continue, the mildly stimulant plan of treatment is to be pursued, taking care that neither great nor permanent irritation be induced. A slight course of mercury may at times be useful, and should there be any large vessel running to the part, it should be either divided or touched with a pencil of the nitrate of silver. M. Carron du Villards recommends the instillation of the oleum jecoris aselli (cod-oil), which, he says, has proved of great service in his hands. It is more useful and occasions less pain than the liquid laudanum. The lighter colored, as the less stimulant, should be first used. ℞ Liq. Ammon. gtt. x.; Olei nucis jugland. ʒss. Misce, instillet guttas ij., inter palpebras. (*Graëfe.*) ℞ Hydrarg. bichlor. gr. j.–ij.; Aq. des. ʒj.; solve. (*Frick.*) ℞ Butyr. recent. ʒij.; Hydrarg. binoxidi gr. xv.; Tutiæ gr. vj.; misce exactissime. (*Beer.*) ℞ Hydrarg. chlor.; Pulv. sacch. partes æquales; misce, fiat pulv.

pro insufflatione. ℞ Pulv. Sacch. Oxydi Zinci, partes æquales; fiat pulv. pro insuffl. (*Recamier.*) ℞ Pulv. sacch. gr. cv.; Tutiæ gr. viij.; Hydrarg. binoxidi gr. xvj.; misce, fiat pulv. pro insufflat. (*Dupuytren.*)

INTERSTITIAL ABSCESS, OR ONYX.

One of the consequences of those ophthalmiæ in which corneitis is produced, is *onyx*, a disease, which, from its importance, deserves especial attention. Onyx is an abscess formed between the lamellæ of the cornea, generally at its lower edge, but sometimes in the centre. Its presence is attended with an increase of the severity of the symptoms characterizing the disease by which it is produced, and the treatment necessary for the one, is that by which the other should be combated; indeed, taken in time, incipient onyx is speedily removed by absorption. Should the case be neglected or improperly treated, the secretion of pus between the lay-

ers continues to increase, until the whole of the cornea appears infiltrated with it, and resembles an abscess on the point of bursting. Meanwhile, the irritation is propagated to the iris, the pupil contracts, and effusion of lymph takes place; the pain also is much more severe. The treatment should consist of nauseants, purgatives, counter-irritants, and mercurials, which, besides their general action, promote absorption. I have successfully treated a very large onyx by means of nauseating doses of tartarized antimony and salts, and stimulating the eye; the pus was absorbed, and the disease completely removed. It is not advisable to open the abscess. If unchecked, ulceration will take place, either externally, or into the anterior chamber. The ulcer must be treated as directed in the chapter on that disease, but if it penetrate through all the layers, and a protrusion of the iris take place, the part should be touched every, or every other day, with a nitrate of silver point, until it is healed. Either synechia anterior or staphyloma will be the result.

HYPOPION.

Hypopion, although decidedly not a disease of the cornea, is introduced here that it may be the more readily distinguished from onyx, with which it has sometimes been confounded. A collection of pus in the chambers of the aqueous humor, but chiefly in the anterior chamber, is called hypopion, when it is a direct secretion from the parietes of the cavities, as the lining membrane of the cornea, the iris, the capsule of the lens, or the ciliary processes; when it is the result of an abscess of the cornea or iris bursting into the anterior chamber, it is named spurious hypopion. It is distinguished from onyx or effusion of lymph, by its lying at the bottom of the chamber, and changing its position when the head is moved, its superior limit offering a straight line, whereas lymph is generally in a mass, and the upper edge of an onyx is convex. Pus is sometimes, though rarely, secreted to such an extent as to fill the chamber, and cause a rupture of the eye, when the

iris falls forward, and a staphyloma forms. The treatment of this complication of inflammation must be the same as that for the relief of the disease by which it is caused. Nauseants and mercurials will assist greatly in promoting absorption of the pus, and belladonna will be useful in preventing adhesions of the iris. It is not advisable to puncture the cornea with the view of evacuating the pus, especially if the collection be not large; we must rather trust to our remedial measures; but when the chambers are full of matter, and vision is evidently lost, it will then be of advantage to open the cornea with an iris knife in order to prevent its rupture, and the consequent destruction of the organ.

STAPHYLOMA.

In cases of wounds and ulcers of the cornea penetrating the anterior chamber, the iris is pressed forwards, and occasionally pushed through the opening; if it be

only engaged between the edges of the wound, and becomes covered by a pseudo-membrane, it bears the name of prolapsus, but if the projection be considerable, it is called staphyloma. It may be either partial or complete; in the latter case, the whole of the iris is pushed forwards by the pressure of the vitreous humor from behind; in the former, in some instances, there is present some degree of vision. Where this exists, as it is liable to be lost, should the staphyloma be neglected, it will be advisable to attempt the removal of the projection by a gradual, moderate, and repeated inflammatory process, which may be excited by the cautious use of escharotics, until such a firm cohesion of that part of the cornea, covering the protruded iris, is induced, that it is enabled to resist the pressure of the aqueous humor. This method is only applicable to cases of partial staphyloma; where the disease involves the whole of the iris and cornea, vision is irrecoverably lost, and all that can be done is the removal of the anterior part of the eye, in order that an artificial one may be applied.

The operation may be performed in the following manner: the upper lid being raised, a cataract knife is carried across the base of the staphyloma, in the same manner as for the extraction of cataract: the flap, thus made, is seized with a pair of forceps or the tenaculum, and cut away with the curved scissors. The lid is then allowed to fall over the eye, and the dressings and bandages should be applied, as after the operation for cataract. Pressure on the ball of the eye, both while removing the staphyloma, and afterwards until cicatrization has taken place, must be avoided, lest the lens and vitreous humor should escape, and the eye become atrophic. The bandages, &c., should not be touched for seven or eight days after the operation, in order that the cicatrization of the part may not be impeded.

Another variety of staphyloma exists, in which the iris protrudes through several ulcerations in the cornea, giving it the appearance of a cluster of berries; it is called staphyloma racemosum. It frequently terminates in the diseased condition which has just been described. Sta-

phyloma of the choroid coat, which takes place in some cases after inflammation of that membrane, is noticed under the head Choroiditis.

CONICAL CORNEA.

A projection of the cornea, forming a cone, the base of which is directed towards the iris, the apex being perfectly transparent, and sometimes apparently thinner than usual, occasionally takes place without any known cause. It is called conical cornea. The disease advances very slowly, and years may elapse ere the patient's vision is deeply affected. It renders the individual who is the subject of this complaint myopic, and at last terminates in almost complete blindness. Various remedies and operations have been tried for its relief, but hitherto they have been unsuccessful. It is, therefore, in the present state of knowledge, incurable.

DISEASES OF THE IRIS.

IRITIS.

Inflammatory affections of the iris are divided into idiopathic, traumatic, sympathetic, syphilitic, rheumatic, and strumous. These distinctions are principally drawn from the causes producing the attack of inflammation, rather than from any especial difference in the local symptoms: they merit attention, as some of these varieties require a certain modification in the treatment. The symptoms of iritis, which characterize all its forms, are as follows: the patient complains of dimness of vision, sometimes even amounting to almost total darkness, deep-seated pain in the eye and temple, and round the orbit, which is much increased at night; on examining the organ, the surgeon perceives a beautiful zone of pink vessels radiating towards the

cornea, and evidently seated beneath the conjunctiva; the iris is changed in color, owing to the increased quantity of blood circulating in its vessels; if blue, it becomes greenish, if dark-colored, reddish: as the disease progresses, lymph is effused on the anterior surface and inner margin of the iris, as also into the posterior chamber; adhesions of the iris to the capsule of the lens follow, the lymph becoming organized, and the pupil contracted, occasionally even to a minute point, so as totally to obstruct the passage of the rays of light and deprive the patient of vision. When the contraction does not proceed to this extent, the pupil will be irregular, and the iris adherent in one or more points, and sometimes the capsule of the lens becomes opaque. Iritis is seldom simple; it is generally combined with inflammation of the sclerotica, cornea, conjunctiva, or choroid coat, the symptoms of which occasionally mask the iritic complaint. The inflammation caused by syphilis runs its course more rapidly than that arising from a rheumatic taint. The treatment to be adopted must be strictly

antiphlogistic; venesection, *prout ferant vires*, and purgation should be premised, and then immediate recourse had to mercury, either with opium only, or combined with remedies suited to the peculiar exigencies of the case. In traumatic and syphilitic iritis, salivation should be rapidly induced, where it can be borne, as otherwise it will be impossible to save the eye. In rheumatic cases, preparations of colchicum, in combination with the mercury, must be employed; and in the peculiar form of iritis following typhus, as also in the strumous variety, quina is essentially necessary.

There are some constitutions which will not bear mercury, and others again, where the exhibition of that remedy is inadmissible, because the patient has the system already fully charged therewith from previous medication. In such cases, Mr. Carmichael's plan of using the oil of turpentine internally, so as to cause strangury, may be had recourse to, with great advantage. Towards the termination of the case, and sometimes even early in the treatment, belladonna, hyoscyamus, or

stramonium, should be applied, either in solution to the eye, or on the temple, as a plaster or unguent, to dilate the pupil, and prevent adhesions, as well as to tear asunder those already formed. The lymph effused will generally be absorbed under the influence of mercury, and I have known a similar effect produced by the turpentine. ℞ Hydrarg. chloridi gr. ij.; Pulv. opii gr. $\frac{1}{3}$–$\frac{1}{2}$; Conf. q. s. fiat pil. quater vel sex vices in die sumend. ℞ Hydrarg. chloridi gr. ij; Extr. colchici gr. j.; Extr. hyoscyam. gr. j.; Pulv. opii gr. $\frac{1}{4}$; *m.* fiat pil. ter die sumend. ℞ Hydrarg. chloridi gr. ij.; Extr. acet. colch. gr. $\frac{1}{2}$; Pulv. opii gr. $\frac{1}{3}$; Extr. hyoscyam. gr. ij.; *m.* fiat pil. bis vel ter die sumend. ℞ Vin. sem. colch. *m.* xxv.; Potassæ sulph. ℈j.; Syr: Croci ʒj.; Aq. destill. ℥j. Misce, fiat haustus ter de die sumend. ℞ Hydrarg. chloridi gr. ij.; Disulph. quinæ gr. ij.; Conf. q. s. fiat pil. bis vel ter die sumend. ℞ Hydrarg. chlor. gr. j.–ij.: Quinæ disulph. gr. ij.; Pulv. opii gr. $\frac{1}{3}$–$\frac{1}{2}$; Conf. q. s. *m.* fiat pil. bis terve die capiend. ℞ Olei terebinth. rect. ℥j.; Vitellum ovi unius; tere simul,

et adde gradatim, emuls. amygdal. ℥iv.; Syr. aurant. ʒij.; Tinct. lavend. c. ʒiv.; Ol. cinnam. *m.* iij.; *m.* sumat coch. magn. ij.; ter quaterve die. ℞ Extr. bellad. ℈j.; Aquæ destill. ℥j., solve et cola; Instillet gtt. iij. inter palpebras, bis die. ℞ Liq. opii sedativ. *m.* xxx.–l.; Syr. Rhead. ʒj.; Aq. destill. ℥j.; fiat haustus anod. h. s. s.

STRUMOUS IRITIS.

Cases of acute primary iritis, caused by struma, are very rare, compared with attacks of iritis consequent on strumous inflammation of the conjunctiva or cornea. The disease is recognised by the age of the patient, who is generally under puberty, the pain being slight, the inflammation not much marked, and very little effusion of lymph; the zonular appearance of the sclerotica, and alteration of color and immobility of the iris, are the principal symptoms, and these may continue for weeks, without producing further change.

After a time, effusion takes place, the pupil adheres to the capsule, which is rendered opaque, the patient complains of pain and intolerance of light, the iris becomes convex, the pupil obliterated, vision is quite lost, and the eye finally becomes boggy and atrophied. The treatment most likely to be of service is a combination of calomel and opium with quina, but the disease is not very amenable. Belladonna may be used to dilate the pupil.

ARTHRITIC IRITIS.

A disease, called by the Germans *Arthritic ophthalmia*, occurs among elderly people, who have led an irregular life, using large quantities of tobacco and alcohol, and whose constitutions are injured to a great extent. It exhibits the characteristic symptoms of iritis, considerably modified, and is one of the most intractable diseases that membrane is liable to, at the same time that relapses are

much more to be dreaded. The vessels forming the zonular appearance on the sclerotica are of a purplish hue, and show an evident inclination to become varicose; the sclerotica assumes a dirty violet color, with a white ring round the cornea; the pupil in some cases dilates, but not uniformly, being rather oval-shaped, without effusion of lymph; in others, it is as decidedly contracted, closed with lymph, and adherent to the capsule of the lens. In the former case of dilated pupil, the lens becomes cataractous and projects into the anterior chamber; the vessels of the choroid are varicose and shine through the attenuated sclerotica. Vision is now quite gone. It sometimes happens that the enlarged and projecting lens presses against the cornea, causing ulceration and evacuation of the humors. Even when this does not happen, the case may terminate in atrophy of the organ. The general symptoms are those of fever, with intense racking pain, commonly much increased during the night, but sometimes without any diminution. Irregular bowels, headache, tubercular eruptions, giddiness, low-

ness of spirits, &c., accompany this complaint. Venesection may be employed if the state of the pulse warrant its use, if not, leeches may be applied with advantage; the bowels should be freely opened, and kept soluble during the progress of the case: mercury, carried so far as to induce ptyalism, will be injurious, but it may be used as an alterative; quinine and the sesqui-oxide of iron have been found serviceable, as has also counteraction by blisters, or sinapisms to the feet; but colchicum, either in the form of the extract, or of the wine of the seeds, will be the most useful remedy. At the same time, the pain should be alleviated by anodyne frictions round the orbit, before the expected paroxysm, to be repeated if necessary. The internal administration of turpentine, as in cases of syphilitic iritis, I should presume, would be of great service. Relapses should be guarded against by a change of diet, attention to the general health, and regulation of the bowels and kidneys. It will be also advisable to open an issue or seton. ℞ Ex. colch. gr. i.–iss.; Ex. opii gr. j.

Misce, fiat pil. ter de die sumend. ℞ Ex. aceti colch. gr. ½–gr. j.; Sodæ exsicc. gr. ½–gr. j.; Ex. hyoscyam. gr. iij. Misce, fiat pil. bis terve die sumend. ℞ Vin. colch. *m.* xxx.; Syr. croci ʒj.; Potass. sulph. ℈j.; Mist. camph. ℥j. Misce, fiat haust. bis terve die capiend. ℞ Ung. Hydrarg. fort. ʒij.; Pulv. opii ℈ss.; Ex. belladonnæ gr. xv. Misce, bene, et fiat ung. ex quo africetur paux-illum nocte tempori, et si opus sit repete-tur. ℞ Linim. sapon. c. ℥j.; Tinct. opii ʒiij. Misce, fiat linimentum ano-dynum.

MYDRIASIS.

Permanent and considerable dilatation of the pupil is thus called. It may be either congenital or acquired, idiopathic or symp-tomatic. The congenital mydriasis is considered incurable, and generally ter-minates in amaurosis, of which the ac-quired form is most frequently merely a symptom. It is indicative also of the

presence of worms, disease in the brain, and of soft cataract. The idiopathic form is rare. It may arise from injury to the frontal nerve, the forcible removal of the lens in extracting the cataract, or from injury to the ciliary nerves. The eye is much dazzled by the great quantity of light, which is admitted by the dilated pupil, and vision is confused in consequence. The treatment of symptomatic mydriasis must be conducted in accordance with the measures adopted for the removal of the original complaint. In the idiopathic form, stimulating applications, scarifications, leeches, blisters, setons in the neck, emetics, &c., have been tried, and sometimes with advantage. The occasional touching of the margin of the cornea with a point of the nitrate of silver, it is said, has proved of service. Dr. Turnbull recommends aconitine and veratria to be employed, and it is said that they possess considerable power over the pupil in causing its contraction.

MYOSIS.

Great contraction of the pupil is called myosis, but when it is completely obliterated, it bears the name of *Synizesis:* the disease is the same, differing only in degree. This complaint is either symptomatic or idiopathic. Watchmakers, engravers, &c., are particularly liable to it. Inflammation of the brain is a frequent cause: it occasionally follows the operation for cataract, wounds and other injuries of the iris or ciliary ligament, ophthalmiæ involving the iris, &c. Vision is very imperfect, and when synizesis is established, it is quite lost. Medicine is but of little service in alleviating this condition of the iris: the only thing to be depended on, is abstinence from the exciting cause.

DISEASES OF THE

CHOROID COAT.

CHOROIDITIS.

Inflammation of the choroid coat may exist independently of disease in any other texture of the eye, but all the adjacent internal structures are speedily interested. The symptoms which mark its attack, are rather obscure; the external appearances consist principally of some enlarged vessels in the sclerotica, passing towards the cornea, and then becoming reticular, without any general redness or inflammation of the conjunctiva; the dark color of the choroid may also be seen shining through the sclerotica at a particular part near the cornea, and at which, as the disease advances, a protrusion, called *choroid staphyloma*, takes place. Effusion next oc-

curs between the retina and choroid, exerting considerable pressure on the vicinal parts, and sometimes inducing absorption of the vitreous humor. The pupil is drawn upwards, or upwards and outwards, and remains in that situation: the cornea becomes either partially or wholly opaque, and is sometimes thinner and larger than natural, scarcely to be distinguished by its appearance from the attenuated sclerotica. The disease is attended from the beginning with epiphora, intolerance of light, and impaired vision; the pain, at first moderate, soon becomes more severe, and after a while intolerable: it is attended with hemicrania, when the disease has continued some time. This complaint not unfrequently terminates in exophthalmos, and from the great irritation which ensues, extirpation may become necessary. Blood-letting is our sheet-anchor in the treatment of this malady: in the early stage, it is of essential importance, and will afford relief even when the disease is formed. In the chronic state, the repeated application of leeches, and free purgation should be

prescribed; the specific influence of mercury is not advantageously shown in managing a case of choroiditis: tonics are of use in its decline: counter-irritation should be had recourse to. Puncturing the sclerotica with a cataract-needle, passed towards the centre of the vitreous humor, when there is effusion between the retina and choroid, will relieve the distension which is complained of.

DISEASES OF THE RETINA.

RETINITIS.

Inflammation of the retina may be either acute or chronic; the acute form is rare; the latter is a not unfrequent cause of the amaurosis which affects watchmakers, surgical instrument makers, &c. In the acute disease, the inflammation rapidly spreads to the vicinal parts, and general ophthalmitis is the result. The patient complains of the eye feeling tense, which is followed by deep-seated, obtuse pain, extending to the brow and head, vision being rapidly lost, and the pupil becoming more and more contracted, until not even a point remains. Even when the luminous rays can no longer penetrate to the retina and its sensibility seems extinct, the patient complains of the appearance of flashes of light and fiery spectra before

the eye; the inflammation extends to the iris, which is changed in color, and remarkably convex anteriorly; the sclerotica is of a rose red hue, and the conjunctiva seems to be one vascular net-work. These symptoms are attended with severe sympathetic fever and headache. After a time the sufferer complains of a feeling of weight in the eye, shiverings take place, and suppuration within the globe is established. The pus continues to increase, passes through the pupil, and fills the anterior chamber: the eye sometimes bursts when the case has been neglected, from the great quantity of pus which is secreted. If the disease is arrested after closure of the pupil, and before suppuration ensues, the eye becomes varicose and atrophic. Among the causes acute retinitis may be enumerated, long-continued microscopic examination of objects, vivid flashes of lightning, long residence in dungeons, and sudden restoration to the light of day, constant view of the snow, &c. When the pupil has closed, and vision is apparently extinct, there are but small grounds to hope for restoration of

sight, and when hypopion has commenced, it will be barely possible to preserve the shape of the eye. Unless the anterior chamber be very full of pus, and in danger of rupture, it is not advisable to open it, but rather to trust to the action of the absorbents, excited by mercury.

Chronic retinitis is marked by a morbid sensibility of light, muscæ volitantes, ocular spectra, slight obscurity of vision, slowly increasing dryness of the eye, followed by gradual contraction of the pupil and immobility of the iris; the least touch about the eye causes pain, and the patient avoids the light, but does not keep the lids closed. The treatment should consist of moderate depletion, general and local, a gentle course of mercury, and occasionally advantage may be derived, in a case much protracted, from opening an issue in the arm.

AMAUROSIS—GUTTA SERENA.

Amaurosis is that species of blindness

which is dependent on an affection of the optic nerve, either at its origin, in its course, or of the expansion into the retina. The symptoms are somewhat varied, being dependent on the original complaint, when the loss of vision is symptomatic, but still the disease itself is marked by a semeiology sufficiently distinct to enable the surgeon to identify it. The symptoms in the commencement are, occasional headaches and pain in the orbit, muscæ volitantes, objects indistinctly or partially seen, sometimes as in a mist, luminous bodies surrounded with a tremulous and variegated halo, the iris somewhat contracted and sluggish, the pupil dull, the eye heavy, and occasionally affected with strabismus and double vision. Myosis is a rare symptom, but occasionally occurs. The iris is sometimes irregular, and drawn to the inner and upper part of the eye. As the amaurosis increases, the muscæ volitantes are not so perceptible, a larger portion of the nervous expansion becoming insensible to the rays of light; the pupil is generally much dilated, and the iris most frequently, but not always, immov-

able; the dull, heavy, starting look of the patient is remarkable, as well as the loss of brilliancy in the cornea. Vision, in a case of gutta serena, is generally best in the broad glare of day, and the patient can distinguish the fire sometimes, when other objects have long previously faded from his view. When the amaurosis is dependent on other diseases, it will be complicated with the symptoms peculiar to the original complaint. It may also exist in conjunction with cataract, glaucoma, cirsophthalmia, exophthalmos, atrophy, paralysis of one or more of the muscles of the eye or lid, ophthalmitis, contusions, diseases of the brain and nervous system, morbid alterations in the structure of the cranium, tumors, worms, diseases of the abdominal viscera, &c. Undue exercise of the organ, long residence in dungeons or mines, the depressing passions, profuse discharges, sudden suppression of long-continued discharges of cutaneous eruptions, protracted suckling, the exhibition of excessive quantities or the abuse of narcotics, sudden exposure to intense light, as flashes of lightning,

houses on fire, &c., deficiency of the pigmentum nigrum, ossification of, or effusion of lymph on, the retina, atrophy of the optic nerve, tumors in its course or origin, &c., may be reckoned among the causes of this disease. Beer has seen it arise from taking chocolate, and he observes that the use of chicory has caused an affection of vision somewhat approaching to amaurosis. It is occasionally congenital, and in some instances hereditary. The disease sometimes makes its appearance very suddenly, but in the majority of instances its progress is gradual.

With regard to the treatment, it must be regulated in those cases where the complaint is symptomatic, by the measures which are calculated to afford relief to the original malady. Thus, when dependent on congestion of the brain, bleeding and evacuants are required; when arising from a disordered condition of the abdominal viscera, the measures proper for the cure of the general disease will also remove the local complaint. Among these, emetics are considered highly useful; they are recommended on

the authority of Cotugno, Richter, Buzzi, and others: worms should be got rid of by the due administration of anthelmintics. Organic changes or malformations in the eye, optic nerve, or brain, are irremediable. In cases where the disease is caused by suppressed discharges or repelled eruptions, the object should be as speedily as possible to restore these, as the least injurious; the influence of the depressing passions must be combated by change of air and scenery, generous diet, and stimulating the organ: this plan will be also useful when the blindness is caused by profuse discharges, protracted suckling, narcotics, residence in mines, or debility of any kind. The eyes of the prisoner or miner should be gradually accustomed to the increased stimulus of light. In addition to the use of tonics, abstinence from the exciting cause is indispensably necessary. In cases where the nervous system is disordered, the sesquioxide of iron has been given with advantage in 3ss. doses three times a day, and Smucker's or Richter's pills, especially when there is habitual costiveness,

have been spoken well of in similar cases. Mercury is useful, but it requires great attention and care; it is particularly advisable where there is a syphilitic taint in the system, but it must not be used when the constitution is much debilitated, nor is it always necessary to push it to salivation, although cases occur in which ptyalism kept up for some time, alone will effect a cure. Travers, Lawrence, and others, speak highly of it as a remedial agent in this disease. When the eye is in a state of congestion, leeches are advisable, or the application of cupping-glasses. Blisters have been used formerly solely as counter-irritants, but of late have been employed on the temple or over the frontal nerve, for the purpose of using strychnia endermically. The cuticle is removed, aud the sore is either dressed with an unguent made with strychnia, or else a powder containing it is sprinkled on the part. The dressings should be renewed every twenty-four hours, and cases are on record where much advantage has been derived from the plan. Errhines are not now much in use. Magendie, on

the supposition that the fifth pair was much concerned in vision, advised acupuncturation of, and galvanizing both the frontal and infra-orbitar nerves, and he states that he has seen much benefit from the plan. Ammoniacal ointment has been rubbed on the forehead and on the scalp, and it is said usefully. I cannot say that I have seen any benefit from such proceeding. The external application of topical stimulants, such as the vinum opii, the spiritus rorismarinæ, spiritus camphoræ &c., have been sometimes had recourse to, but little can be said in their favor. Issues are occasionally of use, especially in checking the disease in the commencement; when it is fully formed, we have but little to expect from the effects of medicine. *Nyctalopia*, or blindness, occurring periodically at night, *Hemeralopia*, or day blindness, diseases rather common in tropical climes, and *Amblyopia*, or double vision, are but varieties of this complaint, and sometimes terminate in amaurosis. ℞ Pil. Hydrarg. gr. v.; Ex. Colo. C. gr. v.; Pulv. Jacobi gr. ij. Misce, fiat pil. ij., capiat nocte pro re

natâ. SMUCKER'S PILLS are—℞ Sagapeni, Galbani, Sapon. venet. a a. ʒj.; Pulv. Rhei. ʒi.ss.; Antim. potassio-tart. gr. xvj.; Succ. glycyrrh. ʒj. Misce, fiat pil. pond. gr. j. capiat æger xv. vespere et mane, pro mense vel hebdom. vj. ℞ Strychniæ gr. ⅓–gr. j.; Ung. cetacei ʒss. Misce, fiat ung. ℞ Strychniæ gr. ⅓–gr. j.; pulv. iridis florent: gr. v. Misce, fiat pulvis. ℞ Antim. potassio-tart. gr. iij.; Aquæ destill. ℥iv. Solve, capiat .coch. magn. ij. donec supervenirent nausea et emesis. (*Scarpa.*) ℞ Antim. potassio-tart. gr. j.; Potassæ bi-tartratis ℥j. Misce, divide in chartulas vj., capiat æger j. mane, in quartis horis, et vespere: persistet in usu pulv. per dies viij. vel x. ℞ Hydrarg. sulph. gr. j.; Pulv. glycyrrh. ℈j. Misce, fiat pulv. sternutatorius; capiat quartam partem bis terve die.—(*Ware.*)

DISEASES OF THE

LENS, AND ITS CAPSULE.

CATARACT.

CATARACT is a term generally used to imply an opacity of the crystalline lens, or of the anterior or posterior capsule; it is, however, occasionally employed to indicate an affection of the vitreous humor, called glaucoma. When the crystalline lens only is engaged in the disease, it is called *lenticular;* if its investing membrane only is opaque, it is denominated *capsular*, and when both are affected, *capsulo-lenticular*. Other adjective terms are also used to imply its peculiar condition and color, as *hard, soft, caseous, milky, flocculent, striated, siliquose, adherent, bursal, cystic, black, amber-colored, greyish,* &c. The *green* cataract is a term especially

applicable to glaucoma. Cataract is also divided into *true* and *false ;* the former having its seat in or within the capsule, the latter external to it ; false cataract is always complicated with other morbid changes in the organ. Among the causes of this disease may be enumerated, an hereditary tendency, constant exposure to strong fires, inflammation of the lens, its capsule, or adjacent parts, blows and other injuries causing penetrating wounds or rupture of the capsule of the lens, and the admission of the aqueous humor, the abuse of wine or spirits, gout, repelled or suppressed discharges, old age, &c. It is occasionally congenital.

It is very essential to distinguish incipient cataract from amaurosis in the early stage, as the disease of the retina may be relieved or cured when commencing, but will be generally found irremediable when fully established. The following diagnostic signs have been pointed out by Beer, as indicating the distinction between the two diseases ; in cataract, all objects are seen through a mist or cloud, which becomes denser as the opacity increases,

which it does very slowly. The dimness of vision in amaurosis generally comes on very suddenly, and is characterized by black motes or spots (*muscæ volitantes*), either fixed or floating in the air; occasionally, however, amaurosis commences with misty vision, gradually becoming worse, while, in other instances, cataract may be accompanied by muscæ volitantes: hence it is evident that a correct diagnosis can only be formed from the aggregate of symptoms, and not from any one in particular. In the majority of amaurotic cases, the patient sees best in the broad daylight, and luminous bodies seem to be surrounded with an iridescent halo: in some instances, much light cannot be borne, and in such the disease is, in all probability, accompanied with chronic retinitis. A cataractous patient sees best with only a moderate degree of light, when the pupil is enabled to expand, so that the luminous rays may pass by the circumference of the opacity: in the daytime, when the pupil is contracted, vision is very defective, as the rays of light strike against the centre of the lens, which

is generally the most opaque. The flame of a candle appears to be surrounded by a whitish circle, which widens as the patient recedes from it. In the early stage, convex glasses assist vision in cases of cataract, but spectacles of any kind are not of service in amaurosis. This latter disease is also generally attended with other symptoms indicative of disturbance of the general health, as headache, vertigo, derangement of the digestive organs, bilious attacks, &c. Incipient cataract is most frequently unaccompanied by any disorder of the system. On examining the eye in commencing cataract, we observe a milky, or pearl-like opacity, situated immediately behind the pupil, in the position occupied by the crystalline lens, more or less convex, and of a dull rough appearance, the iris regular, acting freely on exposure to the light, and unchanged in color. In amaurosis, occasionally on looking directly into the eye, a greenish opacity may be distinguished, which differs from a cataract, inasmuch as it is not seen when the eye is examined sideways, and is always seated far back,

apparently deep in the vitreous humor, and does not appear to be striated, as is the case in posterior capsular cataract. The eyeball is firmer than usual, the iris sometimes discolored and irregular, always sluggish, and its motions limited, if it be not quite immovable The pupil is dull and has lost its jet-black appearance; the eye is staring and vacant.

When the cataract is *hard*, the lens is smaller than usual and of a dull white or horn color, with a dark or amber-colored nucleus; the iris is perfectly free, and obeys the stimulus of light; the posterior chamber is enlarged; the *caseous* cataract is attended with a greater loss of vision, the lens is much enlarged, and the iris more convex and sluggish: it presents a flocculent or stellated appearance. The *lacteal* cataract, so called from its pale white color, resembling skim milk, is a mere change in the density of the lens: the iris is sluggish, and sometimes convex; the *capsular* variety is divided into opacity of the anterior and of the posterior hemispheres of the capsule; vision is rendered equally defective by each: if

the anterior only is opaque, the cataract is unusually convex: if the posterior, very concave. If the whole extent of the pupil is opaque, the disease is probably lenticular: if the opacity be striated or speckled, it is in all probability capsular; and if the opaque striæ radiate from a centre, the posterior hemisphere of the capsule is the seat of the disease. The *capsulo-lenticular* cataract may originate in the lens or in the capsule; it is occasionally congenital: opacity of the posterior hemisphere of the capsule is frequently followed by a lenticular cataract. The appearance of the cataract is partly pearly and partly lacteal or cloudy: the specks or striæ on the capsule assume a variety of forms. If the lens is hard, and the iris acts freely, as is sometimes the case, vision may be assisted for the time by the application of belladonna; if very soft or fluid, the iris becomes very convex, the posterior chamber is obliterated, and the size of the anterior may be diminished. A variety of this disease, called the *cystic capsulo-lenticular* cataract, is the consequence of blows or injuries on the eye,

by which the lens and capsule are separated from their attachments to the vicinal parts, and become opaque. The lens is dissolved, and the capsule assumes a snow-white color; it moves about in the organ with the motions of the head, sometimes projecting spherically through the pupil, at others sinking deep behind the iris, leaving the field of vision tolerably clear, so that the patient can see to read. It is occasionally marked by a tremulous motion in the pupil, whence it has obtained the name of *cataracta tremula*. *Siliquose* cataract is solely capsular, the lens having completely disappeared: it presents a whitish or grey corrugated appearance, is flat, deep-seated, and does not fill up the whole of the pupil. Dependent generally on traumatic causes, it is not unfrequently attended with symptoms of more important disease within the organ: if the retina continue sensible to the rays of light, an operation may be practised. The *bursal capsulo-lenticular* cataract is a rare form: in addition to the cataract there is a small cyst, filled with pus, contained within the capsule. The opacity is of an

orange color, the iris sluggish, the posterior chamber obliterated, vision indistinct, the habit cachectic. Inflammation must, in all cases, have been the cause of this disease. The *choroidal* or *arborescent* cataract is always the consequence of violent contusions on the eye, by which a portion of the tapetum of the uvea has been separated, and lodged on the capsule: in a few days it becomes more perceptible, and the lens and capsule are observed to be opaque. Inflammation coming on, the uvea is united to the capsule, the iris becomes sluggish, and vision is soon entirely destroyed.

The iris requires to be examined with great care, with respect to its color, mobility, form, situation, and the shadow which it throws upon the cataract. If the iris be discolored, as a consequence of previous or then existing inflammation, the eye may be in a state unfavorable for an operation: its mobility is to be tested by covering the sound eye, and exposing the other to a sudden increase of light; should it prove to be sluggish or immovable, it indicates a complication with amau-

rosis, unless it depends on total adhesion to the capsule; its irregular dilatation marks adhesion in one or more points from effused lymph; a tremulous iris shows a paralytic state of the fibres, or a solution of the vitreous humor (synchesis), which is generally attended or followed by amaurosis. If the iris bulge much forwards, it is a proof of a very much enlarged lens, and the operation for extraction cannot be performed, nor is it applicable in cases where the cornea is small: a large cataract is also recognised by the iris not throwing any shadow on it, the posterior chamber being nearly obliterated: if there is a shadow, the cataract is generally small and hard. If the sclerotica be of a dirty yellow color, and the eye boggy, or of a stony hardness, an operation will not succeed. A very small eye is equally unfit; and if it be too prominent, or too sunken, extraction ought not to be attempted. The expression that a *cataract is ripe for operation*, implies that it is so far advanced as to deprive the patient of vision to such an extent that he can only distinguish light from darkness:

if he is completely blind, and unable to recognise the gradations of light, the case is, in all probability, complicated with amaurosis, and an unfavorable prognosis must be given.

The operations in use for the removal of a cataract from the field of vision are of three kinds; viz. by extraction, the operation consisting in making a section of the upper or lower half of the cornea, and, the capsule having been torn, removing the lens through the incision thus made: the second is, by division, or breaking up, a needle with a sharp edge being introduced into the eye, a few lines behind the junction of the cornea and sclerotica, and carried forwards between the iris and lens flat-ways: the sharp edge being then turned towards the lens, the handle is elevated, and the lens divided into two pieces, which are afterwards cut into smaller ones; the larger of these are left *in situ*, the others are pushed into the anterior chamber for solution: this operation sometimes requires to be repeated. The third operation is by reclination or couching: a needle with a sharp point,

but blunt-edged, is introduced into the eye, as in the preceding process, and carried forwards between the iris and lens; then by elevating the handle, the blade is depressed, and with it the cataract, which is forced through the vitreous humor to the bottom of the eye, where it should be detained some time, to allow the humor to close over it, and retain it in that situation. All these operations are liable to be followed by inflammation, the second more especially; that by extraction is occasionally succeeded by secondary cataract, the capsule from which the lens has been removed, becoming afterwards opaque. When couching has been performed, the lens occasionally rises again, and obscures vision as before, or it may exert so much pressure on the retina as to induce amaurosis. After either of these operations, a piece of lint spread with simple cerate is applied over the eye, and a bandage brought round to cover both organs, and totally exclude the rays of light. Antiphlogistic measures should be had recourse to, on the first indication of pain; and low diet, moderate purga-

tion, &c., should be employed for a short time previous to the operation, as well as afterwards.

It must be evident that the slight notices of the operations for cataract given in this chapter, cannot be intended as a guide, but simply to give an idea of the mode of proceeding. For full and complete directions the large treatises should be consulted.

tremulous, the sclerotica of a leaden hue, the globe of the eye soft and flaccid, but sometimes harder than natural, owing to the presence of an increased quantity of the aqueous humor. The eye finally becomes atrophied.

HYDROPHTHALMIA.

Dropsy may affect the eye as well as any other cavity of the body : it is generally the effect of cachexia, or accompanies dropsy in some other organ. The only treatment that can be adopted is of a palliative nature, to relieve the sensation of distension by tapping, but it must not be performed if the eye be varicose, as inflammation, suppuration, and even gangrene of the eye may follow. The disease may affect the aqueous or vitreous humor, separately or conjointly. The enlargement of the anterior chamber, the tenuity of the cornea, with the sluggish and dark-colored iris, and presbyopic vision, will indicate the former, while the

latter is marked by an increase in the size of the back part of the eye, diminution of the aqueous humor, great convexity of the iris, hardness and loss of motion of the organ, pain gradually increasing until it becomes intolerable, and myopia. Tapping will relieve the pain, but if not, Beer's plan of operating by making a section of the cornea, as for the extraction of a cataract, and allowing the lens and part of the vitreous humor to escape, so that the eye may sink, must be adopted.

MALIGNANT DISEASES

OF THE EYE.

CANCER, FUNGUS HÆMATODES, AND MELANOSIS.

The principal malignant diseases to which the eye is subject, are, cancer, fungus hæmatodes, and melanosis.

Cancer affecting the eye is marked by symptoms similar to those which attend it in other parts of the body, accompanied by others which are peculiar to the part diseased; *fungus hæmatodes* shows itself by a small yellow speck at the back of the eye, which gradually advances, filling up the ball, occupying the situation of the vitreous humor, and protruding forwards the lens and iris; the former is early rendered cataractous, and the iris, which is from the beginning dilated and occasion-

ally irregular, becomes, as the growth advances, more and more convex, until the anterior chamber is obliterated. Although vision is lost even while the disease is incipient, but little pain is experienced until the sclerotica assumes a dull leaden hue, and the ball of the eye is rendered unduly tense by the diseased mass. The first symptom that attracts notice in this complaint is the loss of vision. When the growth is placing the tunics of the eye on the stretch, the patient complains of pain, constantly increasing, until it becomes intolerable; the ball at last bursts, and a dark bleeding fungoid mass comes into view. The local progress of the complaint is now much more rapid; the previous complaint may continue for months, but when the fungus is protruded, the patient is gradually worn away by hemorrhage, pain, and sloughing of the tumor. For some time previous to the rupture of the eye, while the changes preparatory to that event are going on in the organ, the general health is much disturbed, and the unfortunate becomes the subject of wasting hectic. The pain con-

WOUNDS AND OTHER INJURIES.

General principles should guide the surgeon in the treatment of incised or lacerated wounds, contusions, &c., of the eyelids and adjacent parts, modified, of course, by the nature of the injury inflicted. The interrupted suture is usually advisable in cases of wounds, adhesive plaster being in but few cases sufficient to keep the divided parts in contact. Considerable ecchymosis not unfrequently follows contusions; the blood may be even effused into the orbit, and the eyeball protruded by it. Injury of the branches of the fifth pair will induce amaurosis, and traumatic ptosis has been caused by a division or laceration of the levator muscle, or by an injury of the branch of the third pair supplying it.

Foreign substances lodged in the folds of the conjunctiva give rise to great un-

easiness, and, if not speedily removed, either by the natural movements of the eye, or by the hand of the surgeon, inflammation and ulceration may ensue. If the extraneous substance be not discoverable on the conjunctiva of the ball, the lower lid should be drawn downwards and its folds examined: if again unsuccessful in the search, the upper eyelid should be everted, when it will come into view. The eversion of the eyelid may be effected by drawing its edge downwards and outwards, and at the same time pressing on its outer surface just above the tarsus. As the foreign body may not be readily perceptible, especially if it be transparent, it will be advisable to pass the point of the finger over the conjunctiva. Quick lime and other caustic alkalies should be removed from the eye as rapidly as possible, and it should be done by means of oleaginous fluids, water being likely, by dissolving the alkali, to increase materially its caustic action. Mr. Guthrie recommends, if oil be not at hand, to force open the eyelids, and throw a strong stream of water between them, so as to

carry off the lime without allowing it time to do mischief, and then having everted the lids, complete the operation by removing every particle of lime. The inflammation which follows is puro-mucous, and should be treated by antiphlogistic measures. Care is requisite when the sloughs, caused by the lime, &c., have separated, that adhesions do not take place between the lids, or between the lids and the ball of the eye.

When the foreign body is embedded in the substance of the cornea, the adjacent portion soon becomes nebulous, and inflammation sets in, involving the conjunctiva, and afterwards the sclerotica; occasionally even iritis is excited. Infiltration of pus between the corneal lamellæ, or ulceration and sloughing of the cornea, may ensue. The extraneous particle should be removed either by the edge of a silver spatula, or, if it be deeply embedded, by passing the point of a cataract needle under it, so as to lift it out. The after-treatment must be regulated according to the symptoms. If in penetrating wounds of the cornea, the iris, as is gene-

rally the case, should be protruded, the surgeon should endeavor to reduce it by applying friction over the closed eyelids, and by exposing the eye to a strong light. If the pupillary margin be protruded, belladonna should be used, but not if the wound be close to the edge of the cornea. If it cannot be reduced, it should be treated as a case of staphyloma.

THE END.

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